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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,099	10/21/2005	Kazuya Ishida	BJS-1114-218	6596

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EXAMINER	
DOTE, JANIS L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,099	ISHIDA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15, 16-20/(1,2,6,10,15), and 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *amended 07/20/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner acknowledges the amendments to claims 1, 2, 6, 10, 15, 16, 18, and 19 and the addition of claims 21-23 filed on filed on Aug. 18, 2008. Claims 1-23 are pending.

2. The "Amendment to the specification" section filed on Aug. 18, 2008, did not comply with 37 CFR 1.121 for the reasons discussed in the Notice of Non-compliant Amendment mailed on Nov. 19, 2008. According, that "Amendment to the specification" has not been entered.

3. All the references listed on the form PTO-1449 filed on Jul. 20, 2006, have been considered by the examiner. However, the examiner inadvertently did not draw an arrow on the form PTO-1449 to indicate so. The examiner has amended and corrected that form PTO-1449, which was mailed on May 1, 2008, with the first office action. The amended and corrected PTO-1449 is attached to this office action.

4. The objection to the amendment filed on Oct. 21, 2005, under 35 U.S.C. 132(a) set forth in the office action mailed on May 1, 2008, paragraph 4, has been withdrawn in response to the amendment to the paragraph insert at page 1, after the title, filed on Dec. 19, 2009.

(Applicants' comments regarding the incorporation-by-reference statement of prior applications have been noted. However, the incorporation-by-reference of the two priority documents should have been done at the filing date of the instant application. As applicants have acknowledged, the instant application, which was filed under 35 U.S.C. 371, is the US national phase application of PCT/JP2004/005506 filed on Apr. 16, 2004. In other words, the filing date of the instant application is Apr. 16, 2004. As noted in the office action mailed on May 1, 2008, paragraph 4, MPEP 608.01(p).I.B, states "[a]n incorporation by reference statement added after the application's filing date is not effective because no new matter can be added to an application after its filing date." If applicants had intended to incorporate-by-reference the two Japanese priority documents, they should have done so at the time the Japanese PCT application was filed.)

The objection to the specification set forth in the office action mailed on May 1, 2008, paragraph 5, has been withdrawn in response to the amended paragraphs at pages 141, 142, 158, 159, 161, and 163 of the specification, filed on Dec. 19, 2008.

The rejections of claims 6-15 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on May 1, 2008,

paragraph 8, have been withdrawn in response to the amendments to claims 6, 10, and 19 filed on Aug. 18, 2008.

The rejections of claims 19 and 20 under 35 U.S.C. 112, second and first paragraphs, set forth in the office action mailed on May 1, 2008, paragraph 10, have been withdrawn in response to the amendment to claim 19 filed on Aug. 18, 2008, and in response to applicants' comments in the response filed on Aug. 18, 2008, last full paragraph on page 22.

The rejections under 35 U.S.C. 102(b) of claims 1, 10, 11, 16, and 18 over Japanese Patent 2003-12619 (JP'619) and under 35 U.S.C. 103(a) of claims 3-9, 12-14, 17, 19, and 20 over JP'619 combined with the other cited prior art, set forth in the office action mailed on May 1, 2008, paragraphs 16-23, respectively, have been withdrawn in response to the amendments to claims 1, 6, and 10 filed on Aug. 18, 2008. Those amendments limit groups Ar^1 and Ar^2 in the enamine compound formula (1) to "each represent an aryl group." In view of applicants' comments in the response filed on Aug. 18, 2008, pages 27-29, the claim language "Ar^1 and Ar^2 each represent an aryl group" limits Ar^1 and Ar^2 to be separate and independent aryl groups, each aryl group containing only carbon atoms that are carbocyclic aromatic carbons and bonded to each other, e.g., unsubstituted phenyl or unsubstituted naphthyl. For applicants'

reasons set forth in the response filed on Aug. 18, 2008, JP'619 does not teach or suggest the enamine compound formula (1) recited in instant claims 1, 6, and 10.

The terminal disclaimers filed on Aug. 18, 2008, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent No. 7,175,956 and of US application No. 10/993,770, have been reviewed and are accepted. The terminal disclaimers have been recorded.

Accordingly, the rejections on the ground of nonstatutory of obviousness-type double patenting of claims 1-15 over claims 1-14 of US Patent No. 7,175,956 (Obata'956) in view of cited prior art and of claims 1-16 and 18 over claims 1-5 of US application No. 10/993,770 (which issued as US Patent No. 7,429,439), set forth in the office action mailed on May 1, 2008, paragraphs 25-29 and 31-35, respectively, have been withdrawn.

5. The examiner has determined that the following terms recited in instant claims 18-20 are means-plus-function limitations covered by 35 U.S.C. 112, sixth paragraph, because there is no corresponding structure recited in the claim:

(1) "charging means for charging . . .";

(2) "exposure means for applying exposure . . .";

(3) "developing means for developing electrostatic latent images. . . "; and

(4) "photoreceptor driving means for rotationally driving the electrophotographic photoreceptor . . . ".

Structures of the "developing means for developing" are found in the developing unit in Fig. 7. Fig. 7 shows a developing device **33** comprising a developing roller **33a** in a casing **33b** that rotatably supports the developing roller around a rotational axis in parallel with the rotational axis of the photoreceptor. See the instant specification, paragraph bridging pages 121 and 122. Those structures define the literal scope of the term "developing means for developing" recited in instant claims 18-20

Fig. 7 shows that the charger **32** is a roller charging system. See the instant specification states at page 121, lines 15-16. The instant specification at page 128, lines 20-22, further states that "while the charger **32** [in Fig. 7] is contact type charging means, it is not restrictive and non-contact type charging means such as a corona charging system may be used." Those two disclosed structures define the literal scope of the term "charging means for charging" recited in instant claims 18-20.

The instant specification at page 121, lines 17-23, discloses that the exposure means **30** in Fig. 7 "has, for example, a semiconductor laser as a light source." That structure defines the literal scope of the term "exposure means for applying exposure" recited in instant claims 18-20.

The instant specification at page 121, lines 1-6, states that the photoreceptor driving means **37** in Fig. 7 "has, for example, a motor as the power source and rotationally drives the photoreceptor **1** at a rotational circumferential speed of Vb by transmitting power from the motor by way of gears (not shown) to a support constituting the core of the photoreceptor **1**." The motor defines the literal scope of the term "photoreceptor driving means for rotationally driving the electrophotographic photoreceptor" recited in instant claims 19 and 20.

6. Claims 15, 17, and 19 are objected to because of the following informalities:

In claim 15, the number-mismatch in the phrase "two or more metal phthalocyanine" (emphasis added). The term "phthalocyanine" should be grammatically plural.

In claim 17, the misspelling "wherin."

In claim 19, the misspelling "controler."

Appropriate correction is required.

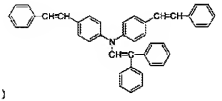
7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-239875 (JP'875). See the Japanese Patent Office (JPO) machine-assisted translation of JP'875 for cites.

JP'875 discloses an electrophotographic photoconductor (also known in the electrophotographic arts as a photoreceptor) comprising an electrically conductive substrate and a photosensitive layer that comprises a charge generation layer and a charge transport layer. Translation, paragraph 0070 and Table 1, the photoconductor in Example 5. The charge generation layer comprises a crystalline X-type metal-free phthalocyanine, as the charge generating material, which meets the non-metal phthalocyanine compositional limitations recited in instant claims 10 and 11. The charge transport layer comprises the styryl compound (20), as the charge transporting material, and a polyarylate binder resin. See the translation, compound (20) in paragraph 0022.

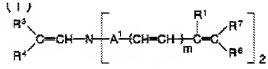
The JP'875 styryl compound (20) meets the limitations of the enamine compound formula (1) recited in instant claim 10,

except for the naphthylene group that is bonded to the nitrogen atom and the integer n=1 for the repeating unit $-(CR^2=CR^1)_n-$ in the moiety $-(CR^2=CR^1)_n-CR^4=(Ar^4)(Ar^5)$, as recited in instant claim 10. See the JP'875 styryl compound (20) shown below:



In the JP'875 styryl compound (20), the nitrogen atom is bonded to a phenylene group and the integer "n" for the repeating unit is zero.

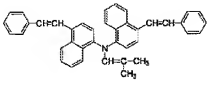
However, according to JP'875, the enamine compound (20) in example 5 is representative of the styryl charge transport formula (1) disclosed in paragraphs 0014-0017. See the JP'875 formula (1) shown below,



In the JP'875 formula (1), A^1 is a bivalent aromatic group, such as phenylene as shown in compound (20) or naphthylene (naphthalenediyl), which can be substituted, as shown in compound (40) in paragraph 0027, where the nitrogen atom and the styryl group moiety is bonded at the 1 and 4 positions of the

naphthalene group, respectively. Translation, paragraph 0016, lines 13-14. See JP'875 compound (40) below:

(40)



JP'875 further teaches that in formula (1), the integer "m" may equally be zero, as shown in compound (20), or one as shown in compound (38) in paragraph 0026. Translation, paragraph 0015, last line.

When the JP'875 compound (20) is modified by replacing the styryl group $-CH=CH-C_6H_6$ in the JP'875 compound (20) with the styryl moiety $-(CH=CH)-CH=CH-C_6H_6$ (i.e., the integer "m" in JP'875 formula (1) is one) and the phenylene A^1 moiety is replaced with the naphthalene group as shown in compound (40), such that the nitrogen atom and the resultant styryl moiety $-(CH=CH)-CH=CH-C_6H_6$ are bonded to the 1- and 4-positions of the naphthalene group, as shown in compound (40), the resultant modified compound is within the compositional limitations of enamine compound formula (1) recited in instant claim 10.

According to JP'875, when the electrophotographic photoconductor comprises a phthalocyanine as the charge generating material and the styryl compound of formula (1), the

photoconductor has high electrification potential and high sensitivity, even after repeated use and under different environmental conditions. The photoconductor is said to have good endurance. Translation, paragraphs 0012, 0013, and 0093.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'875, to modify the JP'875 styryl compound (20) as discussed above, such that the resultant styryl compound is within the compositional limitations of the enamine compound formula (1) recited in instant claim 10, and to use the resultant styryl compound as the styryl compound in the photoconductor disclosed by JP'875. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor having the properties taught by JP'875.

9. Claims 1, 2, 4, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875. See the JPO translation of JP'875 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference.

For the reasons discussed in paragraph 8 above, JP'875 renders obvious a styryl charge transport compound that is

within the compositional limitations of formula (1) recited in instant claim 1. That styryl compound is also within the compositional limitations of formula (2) recited in instant claim 2, when the "d" groups in formula (2) bond to each other to form a cyclic structure.

In addition, JP'875 does not limit the type of phthalocyanine charge generating material used in combination with the styryl compound of formula (1). JP'875 teaches that the phthalocyanine may be a non-metal phthalocyanine as shown in Example 5, or a phthalocyanine having a central metal atom, such as titanium. Translation, paragraph 0013 and paragraph 0043, lines 11-12. JP'875 teaches that the phthalocyanine may be an oxotitanium phthalocyanine, which has a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^\circ$) of 9.5°, 9.7°, 11.7°, 15.0°, 23.5°, 24.1°, and 27.3° in a CuKα X-ray diffraction pattern. See the translation, Table 2 in paragraph 0076, the "Y-TiOPc." That oxotitanium phthalocyanine meets the oxotitanium phthalocyanine recited in instant claims 1, 2, 4, and 22.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'875, to use the oxotitanium phthalocyanine having a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^\circ$) of 9.5°, 9.7°,

11.7°, 15.0°, 23.5°, 24.1°, and 27.3° in a CuKα X-ray diffraction pattern, as taught by JP'875, as the phthalocyanine charge generating material in the photoconductor rendered obvious over the teachings of JP'875. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor having the properties taught by JP'875.

10. Claim 1, 2, 3, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 combined with US 6,210,847 B1 (Miyauchi'847). See the JPO translation of JP'875 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference.

For the reasons discussed in paragraph 8 above, JP'875 renders obvious a styryl charge transport compound that is within the compositional limitations of formula (1) recited in instant claim 1. That styryl compound is also within the compositional limitations of formula (2) recited in instant claim 2, when the "d" groups in formula (2) bond to each other to form a cyclic structure.

JP'875 does not exemplify a charge generation layer comprising an oxotitanium phthalocyanine having a crystal structure as recited in instant claims 3 and 21. However,

JP'875 does not limit the type of phthalocyanine charge generating material used in combination with the styryl compound of formula (1). JP'875 teaches that the phthalocyanine may be a non-metal phthalocyanine as shown in Example 5, or a phthalocyanine having a central metal atom, such as titanium. Translation, paragraph 0013 and paragraph 0043, lines 11-12.

Miyauchi'847 discloses a crystalline oxotitanylphthalocyanine compound having a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^\circ$) of 7.3, 9.4, 9.6, 11.6, 13.3, 17.9, 24.1, and 27.2° in a CuKα X-ray diffraction pattern. The peak bundle formed by overlapping the peaks at 9.4° and 9.6° is the largest peak and the peak at 27.2° is the second largest peak. See col. 4, lines 41-59; production example 1 at cols. 86-87; and Figs. 5 and 6. The Miyauchi'847 oxotitanylphthalocyanine meets the oxotitanium phthalocyanine recited in instant claims 3 and 21. According to Miyauchi'847, when its oxotitanylphthalocyanine is used as the charge generating substance in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability. Col. 4, lines 33-38, and col. 20, lines 47-61.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'875 and Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the phthalocyanine charge generating material in the photoconductor rendered obvious over the teachings in JP'875. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has the properties taught by JP'875 and that has excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

11. Claims 1, 2, 5, 6, 15, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 combined with US 6,270,936 B1 (Tanaka). See the JPO translation of JP'875 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference.

For the reasons discussed in paragraph 8 above, JP'875 renders obvious a styryl charge transport compound that is within the compositional limitations of formula (1) recited in instant claims 1 and 6. That styryl compound is also within the

compositional limitations of formula (2) recited in instant claims 2 and 15, when the "d" groups in formula (2) bond to each other to form a cyclic structure.

JP'875 does not exemplify a charge generation layer comprising an oxotitanium phthalocyanine having a crystal structure as recited in instant claims 5 and 23. Nor does JP'875 exemplify a charge generation layer comprising both an oxotitanium phthalocyanine and another metal containing phthalocyanine as recited in instant claims 6 and 15. However, JP'875 does not limit the type of phthalocyanine charge generating material used in combination with the styryl compound of formula (1). JP'875 teaches that the phthalocyanine may be a non-metal phthalocyanine as shown in Example 5, or a phthalocyanine having a central metal atom, such as titanium or gallium. Translation, paragraph 0013 and paragraph 0043, lines 11-13.

Tanaka discloses a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine compound, each phthalocyanine exhibiting a particular X-ray diffraction pattern. See production examples 1 and 2 and example 1 at col. 8, lines 30-42. The oxytitanium phthalocyanine has a crystal structure showing main diffraction peaks at Bragg angles ($2\theta \pm 0.2^{\circ}$) of 9.0, 14.2, 23.9, and 27.1°

in a CuKα X-ray diffraction pattern. See production example 1 and Fig. 1. The Tanaka oxotitanyl phthalocyanine meets the oxotitanium phthalocyanine recited in instant claims 5 and 23. The combination of phthalocyanines meets the combination of phthalocyanines recited instant claims 6 and 15. According to Tanaka, when its charge generation material is used as the charge generating material in the photosensitive layers in electrophotographic photosensitive members (also known in the art as photoconductors or photoreceptors), the photosensitive members have "low residual potential," are "free of any faulty charging," and show "a small photomemory." The members also have high sensitivity characteristics and "stable potential characteristics when used repeatedly." Col. 2, lines 16-21 and 26-34; col. 8, line 61, to col. 9, line 15; and col. 12, lines 1-4. The members further repeatedly provide good quality images under various environment conditions. Col. 2, lines 21-23, and example 1, col. 9, lines 5-14.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'875 and Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the phthalocyanine charge generating material in the photoconductor rendered obvious over the teachings in JP'875. That person

would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has the properties taught by JP'875 and that has the benefits taught by Tanaka.

12. Claims 6-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 combined with US 5,292,604 (Nukada). See the JPO translation of JP'876 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference.

For the reasons discussed in paragraph 8 above, JP'875 renders obvious a styryl charge transport compound that is within the compositional limitations of formula (1) recited in instant claim 6. That styryl compound is also within the compositional limitations of formula (2) recited in instant claim 15, when the "d" groups in formula (2) bond to each other to form a cyclic structure.

JP'875 does not exemplify a charge generation layer comprising a mixture of an oxotitanium phthalocyanine and a metal phthalocyanine as recited in instant claims 6-9. However, JP'875 does not limit the type of phthalocyanine charge generating material used in combination with the styryl compound

of formula (1). JP'875 teaches that the phthalocyanine may be a non-metal phthalocyanine as shown in Example 5, or a phthalocyanine having a central metal atom, such as titanium, gallium, or indium. Translation, paragraph 0013 and paragraph 0043, lines 11-14.

Nukada teaches a phthalocyanine mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. See, for example, example 3 at col. 8, lines 5-14, and example 19 at col. 8, line 65, to col. 9, line 7, respectively. According to Nukada, the above mixed crystals serve as excellent charge generating material. Col. 13, lines 48-53. When the above mixed crystals are used as the charge generation material in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have excellent stability on repeated use and excellent environmental stability. The photoreceptors also have high sensitivity. Col. 2, lines 5-13; col. 13, lines 54-56; and Table 5 at col. 13, examples 34

and 42, which exemplify photoreceptors comprising the mixed crystals in examples 3 and 19, respectively.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'875 and Nukada, to use either the mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, as taught by Nukada, as the phthalocyanine charge generating material in the photoconductor rendered obvious over the teachings in JP'875. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has the properties taught by JP'875 and that has excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

13. Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 combined with US 6,489,072 B2 (Sasaki). See the JPO translation of JP'875 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference.

JP'875 does not exemplify a charge generation layer comprising a mixture of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 12-14. However, JP'875 does not limit the type of phthalocyanine charge generating material used in combination with the styryl compound of formula (1). JP'875 teaches that the phthalocyanine may be a non-metal phthalocyanine as shown in Example 5, or a phthalocyanine having a central metal atom, such as titanium. Translation, paragraph 0013 and paragraph 0043, lines 11-13.

Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. See example 21 at col. 19, lines 28-43, and example 25 at col. 21, lines 48-57. The Sasaki charge generation material meets the phthalocyanines recited in instant claims 10-14. According to Sasaki, when a photoconductor comprises the above combination of phthalocyanines as the charge generation material, the photoconductor has excellent photoconductive characteristics, in particular excellent potential retention rates. Col. 1, lines 11-16; col. 2, lines 60-65; example 21 in Table 9 at col. 20; and example 25 in Table 11 at col. 22.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in JP'875 and Sasaki,

to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the phthalocyanine charge generating material in the photoconductor rendered obvious over the teachings in JP'875. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoconductor that has the properties taught by JP'875 and that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

14. Claims 16-20/(1,2,6,15) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 combined with Tanaka as applied to claims 1, 2, 6, and 15 above, further combined with US 5,250,990 (Fujimura), Japanese Patent 08-185089 (JP'089), US 5,238,765 (Senoo), US 4,522,483 (Matsumoto), and US 6,178,303 B1 (Ishii). See the JPO translation of JP'875 for cites. Also see the USPTO English-language translation of JP'089 for cites.

The combined teachings of JP'875 and Tanaka renders obvious an electrophotographic photoconductor as described in paragraph 11 above, which is incorporated herein by reference. Both JP'875 and Tanaka teach that the photoconductor may be in

shape of a drum or cylinder. JPO translation of JP'875, paragraph 0060, lines 12-15; and Tanaka, col. 5, lines 11-12.

JP'875 does not exemplify the use of the photoconductor in an electrophotographic image forming method or in an electrophotographic image forming apparatus to form toned images as recited in the instant claims 16 and 17 and claims 18-20, respectively.

However, the use of the electrophotographic photoconductors in known electrophotographic image forming processes and apparatuses would have been obvious to a person having ordinary skill in the art as electrophotographic copying apparatus are ubiquitous in office copying.

According to Fujimura, "in recent years, with the process of miniaturization of electrophotographic apparatus, it has been desired to develop a space-saving type electrophotographic apparatus which is inexpensive and transportable, directed to individual use . . . an apparatus using a drum with a small diameter and a blade cleaning system, is most suitable." Fujimura, col. 1, lines 59-66.

JP'089 teaches an electrophotographic image forming apparatus that is capable of setting the time it takes the organic photoreceptor drum to rotate from the center of the charging device to the center of the developing device to be

≤ 0.3 sec. JP'089 teaches that said time is determined by the formula t = D(θ/2v), where t is the travel time of a point on the surface of the photoreceptor drum from the (the direction of the) center of the charging device to the (the direction of the) center of the developing device, D is the outer diameter (mm) of the photoreceptor drum, θ is the angle (in radians) formed between the position of the charging device center and the position of the developing device center on the photoreceptor drum surface with respect to center thereof as the angle center, and v is the circumferential speed (mm/sec) of the photoreceptor drum. See the USPTO translation, paragraph 0006 and Drawing 3.

The JP'089 image forming apparatus comprises the photoreceptor drum **1**, a corona charging device as the electrification device **2**, an optical system **3** for image exposure, a developing device **4**, which comprises a developing roller housed in a casing, and a cleaning device **6**, which comprises a cleaning blade. See Drawing 3 and the USPTO translation, paragraphs 0011-0013. The corona charging device **2** and the developing device **4** meet the "means for" limitations recited in instant claims 18 and 19. See paragraph 5 supra.

JP'089 teaches that the organic photoreceptor drum may be positive charging type or a negative charging type. USPTO translation, paragraph 0012, lines 1-2. JP'089 exemplifies a

photoconductive drum having an outer diameter of 30 mm, where θ is 1.57 radians. The photoreceptor drum comprises an aluminum cylinder, a charge generation layer, and a charge transport layer. USPTO translation, paragraphs 0036 and 0037, and example 6 in paragraph 0041 and in Table 3 in paragraph 0042. The outer diameter of 30 mm is within the photoreceptor diameter range of "24 mm or more and 40 mm or less" recited in instant claim 20.

According to JP'089, by setting the time "t" to be within 0.3 sec, the image forming apparatus and image forming method stably provide high quality images without decreased image density or with density unevenness, even during continuous image formation. JP'089 further teaches that its apparatus has advantages in respect of miniaturization and speed improvement. USPTO translation, paragraphs 0005 and 0043.

In view of the teachings in JP'089, when the circumferential speed "v" of the photoreceptor drum in JP'089 example 6 is adjusted to a higher speed of about 262 mm/sec, the time "t" it takes the photoreceptor drum to rotate from the direction of the center of the charging device to the direction of the center of developing device is 0.090 sec, i.e., 90 msec (i.e., (30 mm x 1.57 radian)/(2 x 262 mm/sec)). The 0.090 sec time "t" is within 0.3 sec as taught by JP'089. In the JP'089

apparatus, the image exposure device **3** is located between the charging device **2** and the developing device **4**. Because the time "t" is 0.090 sec, it is reasonable to conclude that the time between the start of exposing the photoreceptor drum and the completion of developing the latent image is less than 0.090 sec, which is within the time "90 msec or less" recited in instant claims 17 and 19.

JP'089 does not identify the light source of the optical system **3**. However, Tanaka teaches that in recent years, laser beam printers having lasers as light sources are widely used in electrophotography. Col. 1, lines 21-23. According to Tanaka, "[a]s the light sources, semiconductor lasers are used in view of the cost, the size of the apparatus, and so forth." Col. 1, lines 24-27. Semiconductor lasers, such as those of gallium/aluminum/arsenic, that provide a laser beam having a wavelength of 780 nm are known to be used in electrophotographic laser beam printers. See Senoo, col. 17, lines 41-44 and 48-52. When the charge generation material comprising oxytitanium titanium phthalocyanine and hydroxygallium phthalocyanine in example 1 of Tanaka is used as the charge generation material in the charge generation layer of a photoconductor, Tanaka teaches that the photoconductor can be image-wise exposed with a laser light having a wavelength of 780 nm. See Tanaka, example 1 at

col. 8, line 65. An image exposure device comprising a semiconductor laser as the light source meets the "means for" limitation recited in instant claims 18 and 19. See paragraph 5, supra.

JP'089 also does not disclose that its image forming apparatus comprises a "driving means" and a controller as recited in instant claim 19 to control the circumferential speed of the photoconductive drum. However, it is well known in the electrophotographic arts that in electrophotographic image forming apparatuses a driving device rotates the cylindrical photoconductor and a control device is used to control the driving device to rotate the photoconductive drum at a particular speed. See Matsumoto, Figs. 1 and 2, and col. 2, line 54, to col. 3, line 2. Matsumoto describes a control section **29** shown in Fig. 2 that comprises a main processor **31** that is connected to a sub-processor **33**, which is connected to the input terminal of driver **33a**. Driver **33a** is connected to stepping motor **51** for rotating the photoconductive drum **9** in Fig. 1. Ishii at col. 3, line 66, to col. 4, line 4, describes a controller that includes motors for rotating the photoreceptor drum, the developer roller and other rotary members "at different constant speeds, motor drivers, driving force

transmitting mechanisms, speed sensors, speed controllers, and power sources."

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'875, Tanaka, and JP'089, to use the photosensitive layer rendered obvious over the combined teachings of JP'875 and Tanaka, which comprises a charge generation layer and a charge transport layer that is within the compositional limitations recited in instant claims 1, 2, 6, and 15, as the photosensitive layer on the photoreceptor drum in the image forming apparatus in example 6 of JP'089, where the outer diameter of the drum is 30 mm. It would have also been obvious for that person, in view of the teachings in JP'089, to adjust, through routine experimentation, the circumferential speed of the photoreceptor drum in the resultant image forming apparatus, such that the circumferential speed is about 262 mm/sec and the travel time "t" is about 0.090 sec. It would have further been obvious to that person, in view of the teachings in Tanaka and Senoo, to use a semiconductor laser that provides a laser beam having a wavelength of 780 nm as the light source in the resultant image forming apparatus. It would have also been obvious to that person, in view of the teachings in Matsumoto and Ishii, to incorporate a driving motor to rotate the photoreceptor drum and a processing unit to control the driving

motor such that photoreceptor drum has the above circumferential speed of about 262 mm/sec. That person would have had a reasonable expectation of successfully practicing a high speed image forming method and obtaining a miniaturized and high-speed processing electrophotographic image forming apparatus that both stably provide toner images with good image density even during continuous image formation as taught by JP'089, and that have the advantages taught by JP'875, such as high electrification potential and high sensitivity, even after repeated use and under different environmental conditions, and those taught by Tanaka, such as repeatedly providing good quality images under various environmental conditions.

15. Claims 16-20/(10) are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'875 as applied to claim 10 above, further combined with Fujimura, JP'089, Matsumoto, Ishii, Tanaka, Senoo, US 5,554,472 (Aizawa), and Diamond, Handbook of Imaging Materials, pp. 413 and 415 (Diamond). See the JPO translation of JP'875 for cites. Also see the USPTO English-language translation of JP'089 for cites.

JP'875 renders obvious an electrophotographic photoconductor as described in paragraph 8 above, which is incorporated herein by reference. JP'875 teaches that the

photoreceptor may be in shape of a drum or cylinder. JPO translation of JP'875, paragraph 0060, lines 12-15.

JP'875 does not exemplify the use of the photoconductor in an electrophotographic image forming method or in an electrophotographic image forming apparatus to form toned images as recited in the instant claims 16 and 17 and claims 18-20, respectively.

However, the use of the electrophotographic photoconductors in known electrophotographic image forming processes and apparatuses would have been obvious to a person having ordinary skill in the art as electrophotographic copying apparatus are ubiquitous in office copying.

According to Fujimura, "in recent years, with the process of miniaturization of electrophotographic apparatus, it has been desired to develop a space-saving type electrophotographic apparatus which is inexpensive and transportable, directed to individual use . . . an apparatus using a drum with a small diameter and a blade cleaning system, is most suitable." Fujimura, col. 1, lines 59-66.

JP'089 teaches an electrophotographic image forming apparatus that is capable of setting the time it takes the organic photoreceptor drum to rotate from the center of the charging device to the center of the developing device to be

≤ 0.3 sec. According to JP'089, the image forming apparatus and image forming method stably provide high quality images without decreased image density or with density unevenness, even during continuous image formation. JP'089 further teaches that its apparatus has advantages in respect of miniaturization and speed improvement. The combined teaching of JP'089, Matsumoto, and Ishii render obvious an image forming apparatus as described in paragraph 14. The discussions of JP'089, Matsumoto, and Ishii in paragraph 14 above are incorporated herein by reference.

As discussed in paragraph 14, JP'089 does not identify the light source of the optical system **3**. However, Tanaka teaches that in recent years, laser beam printers having lasers as sources are widely used in electrophotography. Col. 1, lines 21-23. According to Tanaka, "[a]s the light sources, semiconductor lasers are used in view of the cost, the size of the apparatus, and so forth." Col. 1, lines 24-27. Semiconductor lasers, such as those of gallium/aluminum/arsenic, that provide a laser beam having a wavelength of 780 nm are known to be used in electrophotographic laser beam printers. See Senoo, col. 17, lines 41-44 and 48-52. As discussed in paragraph 8 above, the JP'089 charge generation layer comprising a crystalline X-type metal-free phthalocyanine. It is well known in the electrophotographic arts that X-type metal free

phthalocyanine shows absorption and photosensitivity in the relatively long wavelength region of 750 to 800. See Figure 9.16(b) in Diamond at page 415, which shows the absorption spectrum of X-type metal free phthalocyanine. According to Diamond at page 413, lines 24-26, the "long wavelength absorptions of the τ and X forms [of metal-free phthalocyanines] makes them candidates for application involving laser diode exposures." Aizawa shows that an electrophotographic photoconductor comprising a charge generation layer comprising X-type non-metallic phthalocyanine has "excellent photosensitivies under the light beam (780 nm) of a semiconductor laser." Example 1 at col. 4, lines 38-43 and 57-60. An image exposure device comprising a semiconductor laser as the light source meets the "means for" limitation recited in instant claims 18 and 19. See paragraph 5, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'875 and JP'089, to use the photosensitive layer rendered obvious over the teachings of JP'875, which comprises a charge generation layer and a charge transport layer that is within the compositional limitations recited in instant claim 10, as the photosensitive layer on the photoreceptor drum in the image forming apparatus in example 6 of JP'089, where the outer diameter of the drum

is 30 mm. It would have also been obvious for that person, in view of the teachings in JP'089, to adjust, through routine experimentation, the circumferential speed of the photoreceptor drum in the resultant image forming apparatus, such that the circumferential speed is about 262 mm/sec and the travel time "t" is about 0.090 sec. It would have further been obvious to that person, in view of the teachings in Tanaka, Senoo, Diamond, and Aizawa, to use a semiconductor laser that provides a laser beam having a wavelength of 780 nm as the light source in the resultant image forming apparatus. It would have also been obvious to that person, in view of the teachings of Matsumoto and Ishii, to incorporate a driving motor to rotate the photoconductive drum and a processing unit to control the driving motor such that photoconductive drum has the above circumferential speed of about 262 mm/sec. That person would have had a reasonable expectation of successfully practicing a high speed image forming method and obtaining a miniaturized and high-speed processing electrophotographic image forming apparatus that stably provide toner images with good image density even during continuous image formation as taught by JP'089, and that have the advantages taught by JP'875, such as high electrification potential and high sensitivity, even after repeated use and under different environmental conditions.

16. Applicant's arguments filed on Aug. 18, 2008, with respect to instant claims 1-23 have been considered but are moot in view of the new grounds of rejection set forth in paragraphs 8-15 supra.

17. Claims 1-3, 16/(1,2), 18/(1,2), and 21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of US Patent No. 7,457,565 B2 (Fujii'565), as evidenced by that portion of the disclosure in Fujii'565 that supports the subject matter recited in the claims of Fujii'565, in view of Miyauchi'847.

Reference claim 3, which depends on reference claim 2, which in turn depends on claim 1, recites an image forming apparatus comprising an electrophotographic photoreceptor, a charging means, an exposure means, a developing means, and a transfer means. The electrophotographic photoreceptor comprises a conductive substrate and a photosensitive layer that comprises an oxotitanium phthalocyanine as the charge generation substance and a charge transporting substance comprising an enamine compound of formula (2), which meets the compositional limitations of the enamine formulas (1) and (2) recited in instant claims 1 and 2, respectively. Reference claim 4, which

depends from reference claim 1, requires that the photosensitive layer comprise a charge generation layer comprising the charge generation substance and a charge transport layer comprising the enamine compound.

That portion of Fujii'565 that supports the image forming apparatus recited in reference claim 1 describes the image forming apparatus shown in Figs. 1 and 2 of Fujii'565. Fujii'565 discloses that the image forming apparatus comprises the photoreceptor **2**, a contact roller charger **32** as the charging means, a laser writing unit **26** as the exposure means that comprises a semiconductor laser light source that emits a laser light beam **31**, and a developing device **33** as a developing means that supplies toner to the electrostatic latent image to form a toner image. The developing device **33** comprises a developing roller **33a** in a casing **33b** that rotates the developing roller around a rotational axis in parallel with the rotational axis **38** of the photoreceptor **2**. See Fujii'565, col. 85, lines 1-16 and 29-57. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPQ 619, 622 (CCPA 1970). The contact roller charger **32**, the

semiconductor laser light source **31**, and the developing device **33** meet the "means for" limitations recited in instant claims 18. See paragraph 5 supra.

The claims in Fujii'565 do not recite that oxotitanium phthalocyanine has a crystal structure as recited in instant claims 1-3 and 21.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1-3 and 21. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Fujii'565, as evidenced by those portions in Fujii'565 that support the claimed subject matter and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the oxotitanylphthalocyanine charge generation substance in the photoreceptor in the image forming apparatus recited in the claims in Fujii'565. It would have further been obvious for that person to use the resultant image

forming apparatus rendered obvious over the subject matter claimed in Fujii'565 in view of the teachings of Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

18. Claims 1, 2, 4, 16/(1,2), 18/(1,2), and 22 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Fujii'565, as evidenced by that portion of the disclosure in Fujii'565 that supports the subject matter recited in the claims of Fujii'565, in view of US 4,898,799 (Fujimaki).

Reference claims in Fujii'565 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Fujii'565 do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claims 1, 2, 4, and 22.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art.

Fujimaki discloses a titanyl phthalocyanine compound having a crystal structure showing main diffraction peaks at Bragg angles (2θ ± 0.2°) of 9.5, 9.7, 11.7, 15.0, 23.5, 24.1, and 27.3° in a CuKα X-ray diffraction pattern. See col. 3, lines 31-38 and 43-64; synthesis example 1 at col. 61; example 1 at col. 62; and Fig. 1. The Fujimaki titanyl phthalocyanine meets the oxotitanium phthalocyanine recited in instant claims 4 and 22. According to Fujimaki, when its titanyl phthalocyanine is used as the charge generating substance in electrophotographic photoreceptors (also known in the art as photoconductors), the photoreceptors have “high sensitivity especially to light of wavelength more than 600 nm," "high electrical potential stability when used repeatedly,” and “high electrification power.” Col. 2, line 46, to col. 3, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Fujii’565 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor in the image forming apparatus recited in the claims in Fujii’565. It would have further been

obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Fujii'565 in view of the teachings of Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

19. Claims 1, 2, 5, 6, 15, 16/(1,2,6,15), 18/(1,2,6,15), and 23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Fujii'565, as evidenced by that portion of the disclosure in Fujii'565 that supports the subject matter recited in the claims of Fujii'565, in view of Tanaka.

Reference claims in Fujii'565 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Fujii'565 do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant

claims 1, 2, 5, and 23. Nor do the claims in Fujii'565 recite the combination of phthalocyanines recited in instant claims 6 and 15.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1, 5, and 23. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Fujii'565 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation substance in the photoreceptor in the image forming apparatus recited in the claims in Fujii'565. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Fujii'565 in view of the teachings of Tanaka in an image forming method to form toner images. That person would have had a

reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having the benefits taught by Tanaka.

20. Claims 6-9, 15, 16/(6,15), and 18/(6,15) are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Fujii'565, as evidenced by that portion of the disclosure in Fujii'565 that supports the subject matter recited in the claims of Fujii'565, in view of Nukada.

Reference claims in Fujii'565 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Fujii'565 do not recite that the charge generation substance comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9 and 15.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoreceptors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium

phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Fujii'575 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor in the image forming apparatus recited in the claims in Fujii'575. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Fujii'565 in view of the teachings of Nukada in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent stability on

repeated use and environmental stability, and that have high sensitivity, as taught by Nukada.

21. Claims 10-14, 16/10, and 18/10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of Fujii'565, as evidenced by that portion of the disclosure in Fujii'565 that supports the subject matter recited in the claims of Fujii'565, in view of Sasaki.

Reference claims in Fujii'565 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 17 above, which is incorporated herein by reference.

The claims in Fujii'565 do not recite that the charge generation substance comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and metal phthalocyanine, as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine.

The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Fujii'575 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor in the image forming apparatus recited in the claims in Fujii'575. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Fujii'565 in view of the teachings in Sasaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

22. Claims 1 and 3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of US Patent No. 7,449,269 B2 (Sugimura) in view of Miyauchi'847.

Reference claim 1 recites an electrophotographic photoreceptor comprising a conductive substrate and a photosensitive layer that comprises an oxotitanium phthalocyanine as the charge generation substance and a charge transporting substance comprising an enamine compound of formula (1), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. Reference claim 2, which depends from reference claim 1, requires that the photosensitive layer comprise a charge generation layer comprising the charge generation substance and a charge transport layer comprising the enamine compound.

The claims in Sugimura do not recite that oxotitanium phthalocyanine has a crystal structure as recited in instant claims 1 and 3.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure

as recited in instant claims 1 and 3. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Sugimura and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the oxotitanylphthalocyanine charge generation substance in the photoreceptor recited in the claims in Sugimura. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

23. Claims 1 and 4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of Sugimura in view of Fujimaki.

Reference claims in Sugimura recite an electrophotographic photoreceptor as described in paragraph 22 above, which is incorporated herein by reference.

The claims in Sugimura do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claims 1 and 4.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1 and 4. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Sugimura and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Sugimura. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

24. Claims 1, 5, and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of Sugimura in view of Tanaka.

Reference claims in Sugimura recite an electrophotographic photoreceptor as described in paragraph 22 above, which is incorporated herein by reference.

The claims in Sugimura do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claims 1 and 5. Nor do the claims in Sugimura recite the combination of phthalocyanines recited in instant claim 6.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1 and 5. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Fuji'565 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium

phthalocyanine taught by Tanaka as the charge generation substance in the photoreceptor recited in the claims in Sugimura. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has the benefits taught by Tanaka.

25. Claims 6-9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of Sugimura in view of Nukada.

Reference claims in Sugimura recite an electrophotographic photoreceptor as described in paragraph 22 above, which is incorporated herein by reference.

The claims in Sugimura do not recite that the charge generation substance comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoreceptors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8. Nukada also teaches a charge generation material comprising a mixed crystal comprising

oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, and 9. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Sugimura and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Sugimura. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent stability on repeated use and environmental stability, and that have high sensitivity, as taught by Nukada.

26. Claims 10-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of Sugimura in view of Sasaki.

Reference claims in Sugimura recite an electrophotographic photoreceptor as described in paragraph 22 above, which is incorporated herein by reference.

The claims in Sugimura do not recite that the charge generation substance comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and metal phthalocyanine, as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Sugimura and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Sugimura. That person would have had a

reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

27. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of U.S. Patent No. US 7,416,824 B2 (Kondoh).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the reference claims in Kondoh render obvious the electrophotographic photoreceptor recited in the instant claim.

Reference claim 6, which depends from reference claim 4, which in turn depends on reference claim 3, recites an electrophotographic photoreceptor comprising a conductive substrate and a photosensitive layer that comprises an oxotitanium phthalocyanine as the charge generation material and a charge transporting substance comprising an enamine compound of formula (2), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. The oxotitanium phthalocyanine has a crystal structure showing a main diffraction peak at Bragg angle ($2\theta \pm 0.2^{\circ}$) of 27.2° in a CuKα X-ray diffraction pattern, which meets the oxotitanium

phthalocyanine recited in instant claim 1. Reference claim 7, which depends from reference claim 3, requires that the photosensitive layer comprise a charge generation layer comprising the charge generation material and a charge transport layer comprising the enamine compound.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Kondoh, to make and use a photoreceptor that is within the compositional limitations recited in instant claim 1. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that is capable of being used in electrophotographic processes to form toned images.

28. Claims 1 and 3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of Kondoh in view of Miyauchi'847

Reference claims in Kondoh recites an electrophotographic photoreceptor as described in paragraph 27 above, which is incorporated herein by reference.

The claims in Kondoh do not recite that oxotitanium phthalocyanine has a crystal structure as recited in instant claim 3.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1 and 3. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Kondoh and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the oxotitanium phthalocyanine charge generation material in the photoreceptor recited in the claims in Kondoh. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

29. Claims 1 and 4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of Kondoh in view of Fujimaki.

Reference claims in Kondoh recite an electrophotographic photoreceptor as described in paragraph 27 above, which is incorporated herein by reference.

The claims in Kondoh do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claim 4.

However, the use of the oxotitanium phthalocyanine recited in the instant claim as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1 and 4. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Kondoh and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation material in the photoreceptor recited in the claims in Kondoh. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used

repeatedly," and high electrification power, as taught by Fujimaki.

30. Claims 1, 5, and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of Kondoh in view of Tanaka.

Reference claims in Kondoh recite an electrophotographic photoreceptor as described in paragraph 27 above, which is incorporated herein by reference.

The claims in Kondoh do not recite that the oxotitanium phthalocyanine has the crystal structure recited in instant claim 5. Nor do the claims in Kondoh recite the combination of phthalocyanines recited in instant claim 6.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1 and 5. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Kondoh and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation material in the photoreceptor recited in the claims in Kondoh. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has the benefits taught by Tanaka.

31. Claims 6-9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of Kondoh in view of Nukada.

Reference claim 4, which depends from reference claim 3, recites an electrophotographic photoreceptor comprising a conductive substrate and a photosensitive layer that a charge generation material and a charge transporting substance comprising an enamine compound of formula (2), which meets the compositional limitations of the enamine formula (1) recited in instant claim 6. Reference claim 7, which depends from reference claim 3, requires that the photosensitive layer comprise a charge generation layer comprising the charge

generation substance and a charge transport layer comprising the enamine compound.

The claims in Kondoh do not recite that the charge generation material comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoreceptors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, and 9. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Kondoh and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge

generation material in the photoreceptor recited in the claims in Kondoh. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent stability on repeated use and environmental stability, and that have high sensitivity, as taught by Nukada.

32. Claims 10-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-9 of Kondoh in view of Sasaki.

Reference claims in Kondoh recite an electrophotographic photoreceptor as described in paragraph 31 above, which is incorporated herein by reference.

The claims in Kondoh do not recite that the charge generation material comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and metal phthalocyanine, as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine.

The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Sugimura and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation material in the photoreceptor recited in the claims in Kondoh. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor that has excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

33. The following rejections are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

34. Claims 1-3, 16/(1,2), 18/(1,2), and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over claims 1-3, 5, and 11-13 of copending US application No. 10/559,187 (Application'187), as evidenced by that portion of the disclosure in Application'187 that supports the subject matter recited in the claims of Application'187, in view of Miyauchi'847.

According to USPTO records, a Notice of allowability was mailed in Application'187 on Dec. 30, 2008.

Reference claim 13, which depends on any one of reference claims 1-3, recites an image forming apparatus comprising the electrophotographic photoreceptor of reference claims 1, 2, or 3, a charging means, an exposure means, and a developing means. The photoreceptor in reference claim 1 comprises a conductive substrate and a photosensitive layer that comprises an enamine compound of formula (1), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. Reference claim 2, which depends from reference claim 1, requires that the enamine compound be represented by formula (2), which meets the compositional limitations of the enamine formula (2) recited in instant claim 2. Reference claim 3, which depends from reference claim 1, requires that the enamine compound be represented by formula (1a), which is within the compositional limitations of

the enamine formulas (1) and (2) recited in instant claims 1 and 2, respectively.

That portion of Application'187 that supports the image forming apparatus recited in reference claim 13 also describes the image forming apparatus shown in Fig. 4 of Application'187. Application'187 discloses that the image forming apparatus comprises a contact roller charger **32** as the charging means, an exposure means that comprises a semiconductor laser **31**, and a developing device **33** as a developing means that supplies toner to the electrostatic latent image to form a toner image. The developing device **33** comprises a developing roller **33a** and a casing **33b** "for rotabably supporting the developing roller **33a** around a rotational axis in parallel with the rotational axis **44** of the photoreceptor." See Application'187, page 151, line 10, to page 152, line 8. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPQ 619, 622 (CCPA 1970). The contact roller charger **32**, the semiconductor laser **31**, and the developing device **33** meet the "means for" limitations recited in instant claims 18. See paragraph 5 supra.

The claims in Application'187 do not recite that the photosensitive layer comprises the oxotitanium phthalocyanine having a crystal structure as recited in instant claims 1-3 and 21.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1-3 and 21. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'187 and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the photoreceptor recited in the claims in Application'187. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter recited in Application'187 in view of the teachings in Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an

image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

35. Claims 1, 2, 4, 16/(1,2), 18/(1,2), and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5, and 11-13 of Application'187, as evidenced by that portion of the disclosure in Application'187 that supports the subject matter recited in the claims of Application'187, in view of Fujimaki.

Reference claims in Application'187 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 34 above, which is incorporated herein by reference.

The claims in Application'187 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 4, and 22.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in

electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1, 2, 4, and 22. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'187 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Application'187. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'187 in view of the teachings in Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

36. Claims 1, 2, 5, 6, 15, 16/(1,2,6,15), 18/(1,2,6,15), and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5, and 11-13 of Application'187, as evidenced by that portion of the disclosure in Application'187 that supports the subject matter recited in the claims of Application'187, in view of Tanaka.

Reference claims in Application'187 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 34 above, which is incorporated herein by reference.

The claims in Application'187 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 5, and 23. Nor do the claims in Application'187 recite the combination of phthalocyanines recited in instant claims 6 and 15.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka

oxytitanium has a crystal structure as recited in instant claims 1, 2, 5, and 23. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'187 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation material in the photoreceptor recited in the claims in Application'187. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'187 in view of the teachings in Tanaka in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having the benefits taught by Tanaka.

37. Claims 6-9, 15, 16/(6,15), and 18/(6,15) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5, and 11-13 of Application'187, as evidenced by that portion of the disclosure

in Application'187 that supports the subject matter recited in the claims of Application'187, in view of Nukada.

Reference claims in Application'187 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 34 above, which is incorporated herein by reference.

The claims in Application'187 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9 and 15.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoconductors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'187 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'187. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'187 in view of the teachings in Nukada in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

38. Claims 10-14, 16/(10), and 18/(10) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5, and 11-13 of Application'187, as evidenced by that portion of the disclosure

in Application'187 that supports the subject matter recited in the claims of Application'187, in view of Sasaki.

Reference claims in Application'187 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 34 above, which is incorporated herein by reference.

The claims in Application'187 do not recite that the photosensitive layer comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Application'187 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'187. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'187 in view of the teachings in Sasaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

39. Claims 1-3, 16/(1,2), 18/(1,2), and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of copending US application No. 10/575,097 (Application'097), as evidenced by that portion of the disclosure in Application'097 that supports

the subject matter recited in the claims of Application'097, in view of Miyauchi'847.

The rejection is based on the claims filed in Application'097 on Nov. 24, 2008.

Reference claim 6, which depends on reference claim 1, recites an image forming apparatus comprising the electrophotographic photoreceptor of reference claim 1, a charging means, an exposure means, a developing means, a transfer means, and a cleaning means. The photoreceptor in reference claim 1 comprises a conductive substrate and a photosensitive layer that comprises a charge generating substance and an enamine compound of formula (1), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. Reference claim 2, which depends from reference claim 1, requires that the enamine compound be represented by formula (2), which meets the compositional limitations of the enamine formula (2) recited in instant claim 2. Reference claim 4, which depends from reference claim 1, requires that charge generating substance be a titanyl-phthalocyanine compound.

That portion of Application'097 that supports the image forming apparatus recited in reference claim 6 also describes the image forming apparatus shown in Fig. 2 of Application'097.

Application'097 discloses that the image forming apparatus comprises a contact roller charger **32** as the charging means, an exposure means that comprises a semiconductor laser **31**, and a developing device **33** as a developing means that supplies toner to the electrostatic latent image to form a toner image. The developing device **33** comprises a developing roller **33a** and a casing **33b** "for rotabably supports the developing roller **33a** around a rotational shaft line in parallel with the rotational shaft line **44** of the photoreceptor." See Application'097, page 89, line 14, to page 152, line 12. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPQ 619, 622 (CCPA 1970). The contact roller charger **32**, the semiconductor laser **31**, and the developing device **33** meet the "means for" limitations recited in instant claims 18. See paragraph 5 supra.

The claims in Application'097 do not recite that the photosensitive layer comprises the oxotitanium phthalocyanine having a crystal structure as recited in instant claims 1-3 and 21.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1-3 and 21. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'097 and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the photoreceptor recited in the claims in Application'097. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter recited in Application'097 in view of the teachings in Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photosensitivity characteristics to light in the long wavelength

region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

40. Claims 1, 2, 4, 16/(1,2), 18/(1,2), and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of Application'097, as evidenced by that portion of the disclosure in Application'097 that supports the subject matter recited in the claims of Application'097, in view of Fujimaki.

Reference claims in Application'097 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 39 above, which is incorporated herein by reference.

The claims in Application'097 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 4, and 22.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in

instant claims 1, 2, 4, and 22. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'097 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Application'097. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'097 in view of the teachings in Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

41. Claims 1, 2, 5, 6, 15, 16/(1,2,6,15), 18/(1,2,6,15), and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of Application'097, as evidenced by that portion of

the disclosure in Application'097 that supports the subject matter recited in the claims of Application'097, in view of Tanaka.

Reference claims in Application'097 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 39 above, which is incorporated herein by reference.

The claims in Application'097 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 5, and 23. Nor do the claims in Application'097 recite the combination of phthalocyanines recited in instant claims 6 and 15.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1, 2, 5, and 23. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'097 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation material in the photoreceptor recited in the claims in Application'097. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'097 in view of the teachings in Tanaka in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having the benefits taught by Tanaka.

42. Claims 6-9, 15, 16/(6,15), and 18/(6,15) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of Application'097, as evidenced by that portion of the disclosure in Application'097 that supports the subject matter recited in the claims of Application'097, in view of Nukada.

Reference claims in Application'097 recite an image forming apparatus comprising an electrophotographic photoreceptor as

described in paragraph 39 above, which is incorporated herein by reference.

The claims in Application'097 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9 and 15.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoconductors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'097 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium

phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'097. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'097 in view of the teachings in Nukada in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

43. Claims 10-14, 16/(10), and 18/(10) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of Application'097, as evidenced by that portion of the disclosure in Application'097 that supports the subject matter recited in the claims of Application'097, in view of Sasaki.

Reference claims in Application'097 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 39 above, which is incorporated herein by reference.

The claims in Application'097 do not recite that the photosensitive layer comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Application'097 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'097. It

would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'097 in view of the teachings in Sasaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

44. Claims 1-3, 16/(1,2), 18/(1,2), and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending US application No. 10/544,454 (Application'454), as evidenced by that portion of the disclosure in Application'454 that supports the subject matter recited in the claims of Application'454, in view of Miyauchi'847.

The rejection is based on the claims filed in Application'454 on Mar. 6, 2009.

Reference claims 7 and 16, which depend on reference claims 1 and 9, respectively, each recites an image forming apparatus comprising the electrophotographic photoreceptor of

reference claims 1 or 9, a charging means, an exposure means, and a developing means. The photoreceptors in reference claims 1 and 9 comprise a conductive substrate and a photosensitive layer that comprises an enamine compound of formula (1), which meets the compositional limitations of the enamine formula (1) recited in instant claim 1. Reference claims 2 and 10, which depends from reference claims 1 and 9, respectively, require that the enamine compound be represented by formula (2), which meets the compositional limitations of the enamine formula (2) recited in instant claim 2.

That portion of Application'454 that supports the image forming apparatuses recited in reference claims 7 and 16 also describes the image forming apparatus shown in Fig. 4 of Application'454. Application'454 discloses that the image forming apparatuses comprise a charger **32**, such as a corona charging system, as the charging means, an exposure means that comprises a semiconductor laser **31**, and a developing device **33** as a developing means that supplies toner to the electrostatic latent image to form a toner image. The developing device **33** comprises a developing roller **33a** and a casing **33b** "for rotationally supporting the developing roller **33a** around a rotational axis parallel with the rotational axis **44** of the photoreceptor." See Application'454, page 156, line 11, to

page 157, line 8. When addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPQ 619, 622 (CCPA 1970). The corona charger **32**, the semiconductor laser **31**, and the developing device **33** meet the "means for" limitations recited in instant claims 18. See paragraph 5 supra.

The claims in Application'454 do not recite that the photosensitive layer comprises the oxotitanium phthalocyanine having a crystal structure as recited in instant claims 1-3 and 21.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1-3 and 21. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in

Application'454 and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the photoreceptor recited in the claims in Application'454. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter recited in Application'454 in view of the teachings in Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

45. Claims 1, 2, 4, 16/(1,2), 18/(1,2), and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of Application'454, as evidenced by that portion of the disclosure in Application'454 that supports the subject matter recited in the claims of Application'454, in view of Fujimaki.

Reference claims in Application'454 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 44 above, which is incorporated herein by reference.

The claims in Application'454 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 4, and 22.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1, 2, 4, and 22. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'454 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the photoreceptor recited in the claims in Application'454. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'454 in

view of the teachings in Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

46. Claims 1, 2, 5, 6, 15, 16/(1,2,6,15), 18/(1,2,6,15), and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of Application'454, as evidenced by that portion of the disclosure in Application'454 that supports the subject matter recited in the claims of Application'454, in view of Tanaka.

Reference claims in Application'454 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 44 above, which is incorporated herein by reference.

The claims in Application'454 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 5,

and 23. Nor do the claims in Application'454 recite the combination of phthalocyanines recited in instant claims 6 and 15.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1, 2, 5, and 23. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'454 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation material in the photoreceptor recited in the claims in Application'454. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'454 in view of the teachings in Tanaka in an image forming method to form toner images. That person would have had a reasonable

expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having the benefits taught by Tanaka.

47. Claims 6-9, 15, 16/(6,15), and 18/(6,15) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of Application'454, as evidenced by that portion of the disclosure in Application'454 that supports the subject matter recited in the claims of Application'454, in view of Nukada.

Reference claims in Application'454 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 44 above, which is incorporated herein by reference.

The claims in Application'454 do not recite that the photosensitive layer comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9 and 15.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoconductors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium

phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'454 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'454. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'454 in view of the teachings in Nukada in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent stability on repeated use

and environmental stability, and that has high sensitivity, as taught by Nukada.

48. Claims 10-14, 16/(10), and 18/(10) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of Application'454, as evidenced by that portion of the disclosure in Application'454 that supports the subject matter recited in the claims of Application'454, in view of Sasaki.

Reference claims in Application'454 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 44 above, which is incorporated herein by reference.

The claims in Application'454 do not recite that the photosensitive layer comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an

X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Application'454 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the photoreceptor recited in the claims in Application'454. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'454 in view of the teachings in Sasaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an image forming apparatus, an electrophotographic photoreceptor, and an image forming method, all having excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

49. Claims 1-3, 16/(1,2), and 21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of copending US application No. 11/198,405 (Application'405) in view of Miyauchi'847.

The rejection is based on the claims filed in Application'405 on Nov. 25, 2008.

Reference claim 6, which depends on reference claim 1, recites an image forming apparatus comprising the electrophotographic photoreceptor of reference claim 1, a charging means, an exposure means, a developing means, and a transfer means. The electrophotographic photoreceptor in reference claim 1 comprises a conductive substrate and an organic photosensitive layer that comprises a charge generating layer and a charge transporting layer comprising an enamine compound of formula (1), which meets the compositional limitations of the enamine formulas (1) and (2) recited in instant claims 1 and 2, respectively.

The claims in Application'405 do not recite that the charge generating layer comprises the oxotitanium phthalocyanine having a crystal structure as recited in instant claims 1-3 and 21.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in

electrophotographic photoreceptors is well known in the art. Miyauchi'847 teaches a charge generation material comprising a crystalline oxotitanylphthalocyanine having a crystal structure as recited in instant claims 1-3 and 21. The discussion of Miyauchi'847 in paragraph 10 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'405 and the teachings in Miyauchi'847, to use the crystalline oxotitanylphthalocyanine taught by Miyauchi'847 as the charge generation substance in the charge generating layer in the photoreceptor recited in the claims in Application'405. It would have further been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter recited in Application'405 in view of the teachings in Miyauchi'847 in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor and an image forming method, all having excellent photosensitivity characteristics to light in the long wavelength region, characteristics on repeated use, and stability, as taught by Miyauchi'847.

50. Claims 1, 2, 4, 16/(1,2), and 22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of Application'405 in view of Fujimaki.

Reference claims in Application'405 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 49 above, which is incorporated herein by reference.

The claims in Application'405 do not recite that the charge generating layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 4, and 22.

However, the use of the oxotitanium phthalocyanine recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Fujimaki teaches a charge generation material comprising a titanyl phthalocyanine having a crystal structure as recited in instant claims 1, 2, 4, and 22. The discussion of Fujimaki in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'405 and the teachings in Fujimaki, to use the titanyl phthalocyanine taught by Fujimaki as the charge generation substance in the charge generating layer in the

photoreceptor recited in the claims in Application'405. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'405 in view of the teachings in Fujimaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor and an image forming method, all having high sensitivity especially to light of wavelength more than 600 nm, "high electrical potential stability when used repeatedly," and high electrification power, as taught by Fujimaki.

51. Claims 1, 2, 5, 6, 15, 16/(1,2,6,15), and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3-6 of Application'405 in view of Tanaka.

Reference claims in Application'405 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 49 above, which is incorporated herein by reference.

The claims in Application'405 do not recite that the charge generating layer comprises an oxotitanium phthalocyanine having the crystal structure recited in instant claims 1, 2, 5, and 23.

Nor do the claims in Application'405 recite the combination of phthalocyanines recited in instant claims 6 and 15.

However, the use of the oxotitanium phthalocyanine and the combination of phthalocyanines recited in the instant claims as a charge generation material in electrophotographic photoreceptors is well known in the art. Tanaka teaches a charge generation material comprising an oxytitanium phthalocyanine and a hydroxygallium phthalocyanine. The Tanaka oxytitanium has a crystal structure as recited in instant claims 1, 2, 5, and 23. The discussion of Tanaka in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'405 and the teachings in Tanaka, to use the combination of the oxytitanium phthalocyanine and the hydroxygallium phthalocyanine taught by Tanaka as the charge generation material in the charge generating layer in the photoreceptor recited in the claims in Application'405. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'405 in view of the teachings in Tanaka in an image forming method to form toner images. That person would have had a reasonable expectation of

successfully obtaining an electrophotographic photoreceptor and an image forming method, all having the benefits taught by Tanaka.

52. Claims 6-9, 15, and 16/(6,15) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of Application'405 in view of Nukada.

Reference claims in Application'405 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 49 above, which is incorporated herein by reference.

The claims in Application'405 do not recite that the charge generating layer comprises an oxotitanium phthalocyanine and another metal phthalocyanine as recited in instant claims 6-9 and 15.

However, the use of the combinations of phthalocyanines recited in the instant claims as charge generation materials in electrophotographic photoconductors is well known in the art. Nukada teaches a charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6-8 and 15. Nukada also teaches a

charge generation material comprising a mixed crystal comprising oxytitanium phthalocyanine and chloroindium phthalocyanine, which meets the phthalocyanine combination recited in instant claims 6, 7, 9, and 15. The discussion of Nukada in paragraph 12 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'405 and the teachings in Nukada, to use either the Nukada mixed crystal comprising oxytitanium phthalocyanine and chlorogallium phthalocyanine or the one comprising oxytitanium phthalocyanine and chloroindium phthalocyanine as the charge generation substance in the charge generating layer in the photoreceptor recited in the claims in Application'405. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'405 in view of the teachings in Nukada in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor and an image forming method, all having excellent stability on repeated use and environmental stability, and that has high sensitivity, as taught by Nukada.

53. Claims 10-14 and 16/(10) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of Application'405 in view of Sasaki.

Reference claims in Application'405 recite an image forming apparatus comprising an electrophotographic photoreceptor as described in paragraph 49 above, which is incorporated herein by reference.

The claims in Application'405 do not recite that the charge generating layer comprises a non-metal phthalocyanine or the combination of a non-metal phthalocyanine and a metal phthalocyanine as recited in instant claims 10 and 11 and claims 12-14, respectively.

However, the use of the non-metal phthalocyanine and the combination of phthalocyanines recited in the instant claims as the charge generation materials in electrophotographic photoreceptors is well known in the art. Sasaki teaches a charge generation material comprising the combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine. The discussion of Sasaki in paragraph 13 above is incorporated herein by reference. The X-type metal-free phthalocyanine meets the non-metal phthalocyanine recited in instant claims 10 and 11. The Sasaki combination of phthalocyanines meets the

combination of non-metal phthalocyanine and metal phthalocyanine recited in instant claims 12-14.

It would have been obvious for a person having ordinary skill in the art, in view of subject matter claimed in Application'405 and the teachings in Sasaki, to use the Sasaki combination of an X-type metal-free phthalocyanine and a titanyloxophthalocyanine as the charge generation substance in the charge generating layer in the photoreceptor recited in the claims in Application'405. It would have also been obvious for that person to use the resultant image forming apparatus rendered obvious over the subject matter claimed in Application'405 in view of the teachings in Sasaki in an image forming method to form toner images. That person would have had a reasonable expectation of successfully obtaining an electrophotographic photoreceptor and an image forming method, all having excellent photoconductive characteristics, in particular excellent potential retention rates, as taught by Sasaki.

54. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/
Primary Examiner, Art Unit 1795

JLD
Apr. 8, 2009